

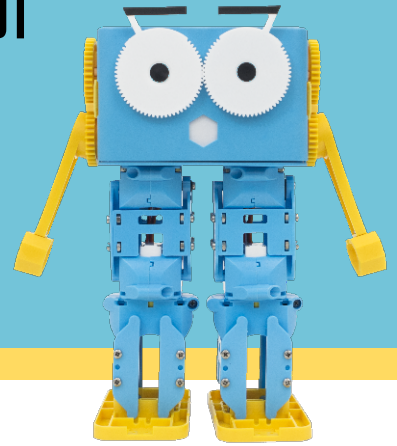
LESSON 1.1 – INTRODUCTION TO MARTY THE ROBOT

EDUCATION LEVEL: Second Level (Ages 7-11)

LESSON DURATION: 45 minutes

PRE-REQUISITES: N/A

DEVICE COMPATIBILITY: N/A



LESSON OVERVIEW

This first lesson is an introduction to Marty and gets students to start thinking about what different parts are used to make our robot. The basics of which parts move and how will be covered through allowing students the opportunity to design their own paper Marty and try out the different movements for themselves.

LEARNING OBJECTIVES

- Understand which parts make up Marty the Robot
- Point out the different body parts and have a basic understanding of how they move

KEY VOCABULARY

- Robot
- Movement
- Joints
- Paper Engineering
- Exploration

RESOURCES & EQUIPMENT

- Marty the Robot (fully charged)
- Student workbooks (Lesson 1)
- Marty colouring-in worksheet
- Colouring in pens/pencils
- Scissors
- Paper fasteners

ADDITIONAL READING

- Marty the Robot Educator Guide
<https://bit.ly/2Xzx183>
- Educator FAQ
<https://bit.ly/2NHMmDG>

LEARNING PLAN & ACTIVITIES

1. Class discussion of what a robot is,
 - a. Ask students to consider how they would define a robot and name any robots that they have heard about
 - b. Ask students what jobs and tasks they think that these robots do and where you might find them (making reference to robots mentioned by students)
2. Using the Marty body diagram worksheet in the workbook, ask students to name the different parts on the sheet and label them
3. Continuing with this section of the workbook, students should circle the joints/body parts that they think will move
4. Hand out one Marty colouring-in worksheet to each student, giving students the chance to colour in the drawings and design their own *Marty stickers* - make sure to show some examples of different Marty stickers that have been used on the class Marty(s)
5. Students should cut out the different body parts and fasten them together using paper fasteners. Students should now have their own paper Marty representing the different body parts that move
6. Students should complete the end of lesson reflection section of their workbooks

EXTENSIONS & CHALLENGES

- Student groups could continue their robot research some more and create presentations about a specific robot and report back to the class (*Literacy/Technologies*)

Curriculum Benchmarks

Curriculum for Excellence – Technologies Benchmark Guide

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.1
Technological Developments in Society and Business	TCH 0-05a	●
	TCH 1-07a	○
Craft, Design, Engineering and Graphics	TCH 0-09a	●
	TCH 0-10a	○
	TCH 0-12a	●
Computing Science	TCH 0-13a	●
	TCH 0-14a	○

National Curriculum – Computing, Design & Technology

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.1
Computing	1-e	○
Design & Technology	1.1-b	●
	1.2-a	●
	1.3-a	○

Australian F-10 Curriculum – Digital Technologies, Design & Technologies

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.1
Digital Technologies	ACTDIK001	●
	ACTDIK002	●
	ACTDIP004	●
	ACTDIP010	○
	ACTDIP012	●
	ACTDIP027	○
Design & Technologies	ACTDEK001	●
	ACTDEP006	●
	ACTDEP009	●

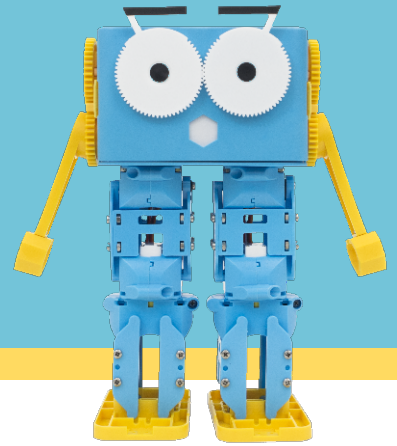
LESSON 1.2 – INTRODUCTION TO PROGRAMMING

EDUCATION LEVEL: Second Level (Ages 7-11)

LESSON DURATION: 45 minutes

PRE-REQUISITES: Lesson 1.1

DEVICE COMPATIBILITY: Laptop, PC or Tablet



LESSON OVERVIEW

Now that students have their own paper Marty prototype, we will start to build up on student's understanding that programming is simply a list of instructions. There will be an emphasis on trying to relate this back to *real life* to make it more relatable. Students will start breaking down blocks of code to make sense of each individual instruction before putting together their own small programs.

LEARNING OBJECTIVES

- Relate coding blocks and coding to real life situations
- Predict what outcomes different blocks of code will have on the world
- Put together different blocks of code to achieve certain actions/outcomes

KEY VOCABULARY

- Programming
- Paper prototyping
- Block coding
- Instructions/recipe
- Algorithm
- Movement

RESOURCES & EQUIPMENT

- Marty the Robot (fully charged)
- Paper Marty (created from Lesson 1.1)
- Student workbooks (Lesson 2)
- Marty Says action cards
- Access to compatible devices connected to Marty on Scratch

ADDITIONAL READING

- Marty the Robot Educator Guide
<https://bit.ly/2Xzx183>
- Educator FAQ
<https://bit.ly/2NHMmDG>
- Getting Started with Scratch
<https://bit.ly/2Vzc5xj>

LEARNING PLAN & ACTIVITIES

1. Show a few different examples of Marty Says action cards that show different poses that Marty can make
2. Students should then try to recreate these actions using their paper prototypes
3. Get students to think about the steps that they took to recreate the pose using their paper Marty and write down instructions for someone to repeat (relating back to the idea that programming is writing a list of instructions)
4. Test these out using either paper Marty prototypes or by getting a student volunteer to pretend to be the class robot
5. Students should then move to their devices and, using the Scratch editor, start to put together different blocks together to achieve the pose from the randomly selected Marty Says card
6. Students should complete the end of lesson reflection section of their workbooks

EXTENSIONS & CHALLENGES

- Try combining different poses to start putting together some dance moves for Marty (*Technologies*)
- Students should design and draw their own poses for Marty and challenge others in the class to program their Marty to get into that position (*Arts/Technologies*)

Curriculum Benchmarks

Curriculum for Excellence – Technologies Benchmark Guide

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.2
Digital Literacy	TCH 0-01a	●
Technological Developments in Society and Business	TCH 0-05a	○
	TCH 3-05a	●
Craft, Design, Engineering and Graphics	TCH 0-11a	●
	TCH 1-11a	●
	TCH 0-12a	●
Computing Science	TCH 0-13a	●
	TCH 1-13a	○
	TCH 0-14a	●
	TCH 0-14b	●
	TCH 1-14a	●
	TCH 1-14b	○
	TCH 2-14a	○
	TCH 0-15a	○

National Curriculum – Computing, Design & Technology

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.2
Computing	1-a	○
	1-b	●
	1-c	●
	1-e	○
	2-a	●
	2-c	○
	3-b	○
Design & Technology	1.1-a	●
	1.1-b	○
	1.3-b	●

Australian F-10 Curriculum – Digital Technologies, Design & Technologies

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.2
Digital Technologies	ACTDIK001	●
	ACTDIK002	●
	ACTDIP004	●
	ACTDIP010	●
	ACTDIP013	●

Design & Technologies	ACTDEK001	<input type="radio"/>
	ACTDEP005	<input type="radio"/>
	ACTDEP006	<input checked="" type="radio"/>
	ACTDEP009	<input checked="" type="radio"/>

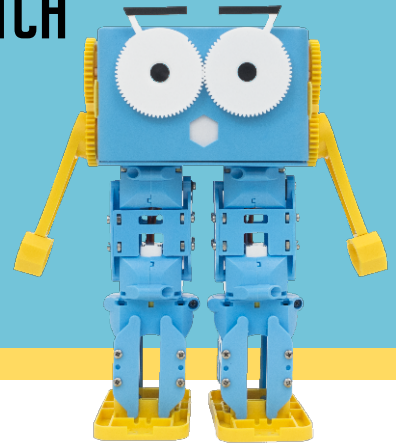
LESSON 1.3 – GETTING COMFORTABLE WITH SCRATCH

EDUCATION LEVEL: Second Level (Ages 7-11)

LESSON DURATION: 45 minutes

PRE-REQUISITES: Lesson 1.1 & 1.2

DEVICE COMPATIBILITY: Laptop, PC or Tablet



LESSON OVERVIEW

Students have now had their first taste of programming using the Scratch editor. In this lesson, they will begin to become more comfortable with the interface being used and start to build up an understanding of where certain blocks can be found. As part of this lesson, we will be introducing a little bit of debugging and trying to get students to recognise when something isn't happening correctly and why we should frequently test our programs.

LEARNING OBJECTIVES

- Relate coding blocks and coding to real life situations
- Predict what outcomes different blocks of code will have on the world
- Recognise when the program has a bug or error
- Understand why the error is happening and how to fix it

KEY VOCABULARY

- Programming
- Block coding
- Instructions/recipe
- Testing
- Algorithm
- Debugging

RESOURCES & EQUIPMENT

- Marty the Robot (fully charged)
- Student workbooks (Lesson 3)
- Access to compatible devices connected to Marty on Scratch

ADDITIONAL READING

- Marty the Robot Educator Guide
<https://bit.ly/2Xzx183>
- Educator FAQ
<https://bit.ly/2NHMmDG>
- Getting Started with Scratch
<https://bit.ly/2Vzc5xj>

LEARNING PLAN & ACTIVITIES

1. Remind students of the last lesson where we introduced programming Marty using Scratch by showing some examples of blocks on the screen and asking students what they think would happen
2. Given a few examples, ask students to run a few small, pre-written, programs in Scratch and observe whether they do what they should be doing
 - a. Encourage students to think about what the aim of the program is and how they would program Marty to meet it
 - b. Ask students to highlight what the small problems are with the program(s)
3. Introduction to debugging and why it is important that we test our scripts with emphasis from real world situations and events
4. Ask students to try and fix the problem with the program
5. Repeat this exercise with a couple of different small programs where students debug and remix
6. Students should complete the end of lesson reflection section of their workbooks

EXTENSIONS & CHALLENGES

- Encourage students to think about how they would improve these small programs and try to implement the ideas themselves (*Technologies*)
- Research some of the different events and disasters highlighted in the lesson that could have been prevented/minimised with some more testing and debugging (*Literacy/Technologies*)

Curriculum Benchmarks

Curriculum for Excellence – Technologies Benchmark Guide

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.3
Digital Literacy	TCH 0-01a	●
	TCH 1-01a	●
	TCH 2-01a	○
Technological Developments in Society and Business	TCH 0-05a	●
	TCH 1-05a	○
Craft, Design, Engineering and Graphics	TCH 0-12a	●
Computing Science	TCH 0-13a	●
	TCH 1-13a	○
	TCH 2-13a	●
	TCH 3-13a	○
	TCH 4-13b	○
	TCH 0-14a	●
	TCH 0-14b	○
	TCH 1-14a	●
	TCH 1-14b	○
	TCH 0-15a	●
	TCH 1-15a	●
	TCH 2-15a	○

National Curriculum – Computing, Design & Technology

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.3
Computing	1-a	●
	1-b	●
	1-c	●
	1-e	○
	2-a	○
	2-b	●
	3-a	○
Design & Technology	1.1-b	○
	1.3-b	○

	2.3-c	○
--	-------	---

Australian F-10 Curriculum – Digital Technologies, Design & Technologies

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.3
Digital Technologies	ACTDIK001	●
	ACTDIK002	●
	ACTDIK003	○
	ACTDIK004	●
	ACTDIK008	○
	ACTDIP009	○
	ACTDIP010	●
	ACTDIP011	○
	ACTDIP013	●
	ACTDIP019	○
	ACTDIP020	○
	ACTDIP027	○
	ACTDIP029	○
Design & Technologies	ACTDEK001	○
	ACTDEK004	○
	ACTDEP006	●
	ACTDEP009	●

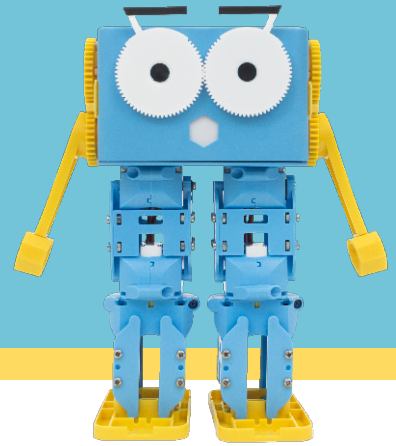
LESSON 1.4 – MARTY DANCE PARTY

EDUCATION LEVEL: Second Level (Ages 7-11)

LESSON DURATION: 45 minutes

PRE-REQUISITES: Lesson 1.1, 1.2 & 1.3

DEVICE COMPATIBILITY: Laptop, PC or Tablet



LESSON OVERVIEW

In this lesson, we follow on from the first three lessons where students have started to explore not only programming but also what we can program Marty to do. We will continue to explore the different functionalities and features of Marty by programming Marty to dance, challenging students to have a Marty dance-off!

LEARNING OBJECTIVES

- Build upon knowledge of movements and functionalities that Marty has
- Develop a Scratch program to program Marty to dance
- Start to think about joining different movements together

KEY VOCABULARY

- Robot
- Movement
- Joints
- Programming
- Dancing
- Algorithm

RESOURCES & EQUIPMENT

- Marty the Robot (fully charged)
- Student workbooks (Lesson 4)
- Access to compatible devices connected to Marty on Scratch
- Marty Says action cards

ADDITIONAL READING

- Marty the Robot Educator Guide
<https://bit.ly/2Xzx183>
- Educator FAQ
<https://bit.ly/2NHMmDG>
- Getting Started with Scratch
<https://bit.ly/2Vzc5xj>

LEARNING PLAN & ACTIVITIES

1. Recap what has been done in previous lessons, including looking at different moves that Marty can do by showing a couple of the Marty Says action cards and touch on the importance of testing code frequently
2. Students break into small groups (2-4) and begin to plan out their dance before moving on to their devices to program Marty together
3. Student groups take turns to demo the dance moves that they have programmed
4. Students can then go back to development to add new things to their routine or improve current moves after class demonstrations
5. Students should complete the end of lesson reflection section of their workbooks

EXTENSIONS & CHALLENGES

- Ask students to think about a popular dance move that they know and see if they can program Marty to do these moves (*Arts/Technologies*)
- Get students to pick a song to create a dance to, so that they can try to develop moves that work in time with the song (*Arts/Technologies*)
- Create a stage, pick a song and film the dance routine that can be edited by students and turned into their own music video (*Arts/Technologies*)

Curriculum Benchmarks

Curriculum for Excellence – Technologies Benchmark Guide

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.4
Digital Literacy	TCH 0-01a	●
	TCH 1-01a	○
Technological Developments in Society and Business	TCH 0-05a	●
Craft, Design, Engineering and Graphics	TCH 0-11a	●
Computing Science	TCH 0-13a	●
	TCH 1-13a	○
	TCH 2-13a	●
	TCH 3-13b	○
	TCH 0-14a	●
	TCH 0-14b	●
	TCH 1-14a	●
	TCH 2-14a	○
	TCH 0-15a	●
	TCH 1-15a	●
	TCH 2-15a	●

National Curriculum – Computing, Design & Technology

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.4
Computing	1-a	●
	1-b	●
	1-c	●
	2-a	●
	2-b	○
	2-c	●
	3-a	○
Design & Technology	1.1-a	●
	1.3-b	●

Australian F-10 Curriculum – Digital Technologies, Design & Technologies

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.4
Digital Technologies	ACTDIK001	●
	ACTDIK002	●
	ACTDIP003	○
	ACTDIP004	●

	ACTDIK008	○
	ACTDIP009	○
	ACTDIP010	●
	ACTDIP011	○
	ACTDIP012	●
	ACTDIP013	●
	ACTDIP019	○
	ACTDIP029	○
	ACTDIP027	○
	ACTDIP028	○
	ACTDIP029	○
	ACTDIP030	○
	ACTDIP031	○
	ACTDIP039	○
Design & Technologies	ACTDEK001	○
	ACTDEK002	○
	ACTDEK004	○
	ACTDEP005	○
	ACTDEP006	●
	ACTDEP009	●